the slope of the left ventricular function curve (stroke work or pulse pressure plotted against filling pressure), which depends on the severity of heart disease.[2] Furthermore, the absence of a decrease in blood pressure may be caused by increased sympathetic activity and reduced vagal activity, which is seen in heart failure and which is associated with increased mortality.[3]

Among patients not undergoing surgery, all patients who died, died of heart failure and PPR was strongly related to mortality. The predictive value of PPR was lower for those patients who died after cardiac surgery. Apparently, other factors than those reflected by the Valsalva manoeuvre may have caused death.

Notably, the expiratory pressure during the Valsalva manoeuvre differed between patients, which could have influenced our findings. Low expiratory effort may be caused by general weakness or poor compliance, meaning that if expiratory pressure is low, the decrease of pulse pressure is small, regardless of cardiac filling pressures.

In conclusion, the PPR of the Valsalva manoeuvre was related to the risk of death in a heterogeneous group of elderly patients with cardiac disease undergoing right-sided cardiac catheterisation. The PPR may therefore be a non-invasive prognostic marker in addition to established invasive and non-invasive prognostic variables. These hypothesis-generating findings fuel interest in large prospective studies on the prognostic implications of the Valsalva manoeuvre.

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IMAGES IN CARDIOLOGY

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Massive tear of the mitral valve after percutaneous mitral commissurotomy by live 3D transthoracic echocardiography

A 45-year-old woman was referred to our cardiology department for percutaneous mitral commissurotomy. Mitral stenosis was known for several years and the patient progressively developed symptoms (New York Heart Association functional class III). Her mitral valve was slightly calcified; mitral valve area was 1 cm^2 and mean transmitral gradient 8 mm Hg. There was a mild associated regurgitation. Systolic artery pulmonary pressure was 38 mm Hg. After the first balloon inflation, she developed a severe mitral regurgitation due to a massive tear located in the mid part of anterior leaflet. The tear was suspected by two-dimensional echocardiography but clearly shown by live three-dimensional echocardiography and confirmed during surgery performed two days later.

Numerous reports have demonstrated the safety and efficacy of percutaneous mitral commissurotomy and this technique has virtually replaced surgical commissurotomy. However, severe mitral regurgitation remains a worrying complication and can occur in 2–10% of patients. Live three-dimensional echocardiography is a relatively new echocardiographic modality, which looks very promising for the assessment of mitral valve anatomy.

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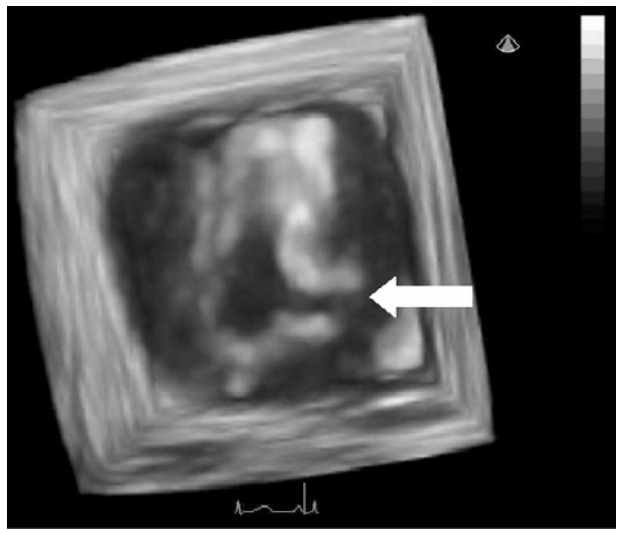

Apical view of the mitral valve (three-dimensional echocardiography). Note the tear in mid part of the anterior leaflet (arrow).